CLAIMS

1. A method for use in a wireless receiver, comprising:

receiving a wireless signal;

processing a first synchronization channel (305) of the received wireless signal to acquire slot synchronization; and

processing a second synchronization channel of the received wireless signal to acquire frame synchronization in such a way that the first synchronization channel is used to adjust for a frequency offset (310).

2. The method of claim 1, wherein the first synchronization channel is a primary synchronization subchannel (PSCH) and the second synchronization channel is a secondary synchronization subchannel (SSCH) of a universal mobile telephone system (UMTS).

3. The method of claim 1, wherein the step of processing a second synchronization channel includes the steps of:

processing the first synchronization channel to estimate a frequency offset in the received wireless signal; and

adjusting a clock of the wireless receiver to compensate for the estimated frequency offset.

4. The method of claim 3, wherein the step of processing the first synchronization channel to estimate a frequency offset includes:

rotating signals associated with the first synchronization channel through a plurality of frequency offsets;

determining a corresponding plurality of correlation peaks for each of the rotated signals at each of the plurality of frequency offsets;

selecting at least one of the plurality of correlation peaks such that a magnitude of the selected correlation peak is at least as large as magnitudes of the remaining plurality of correlation peaks; and

using at least the corresponding one of the plurality of frequency offsets associated with the selected correlation peak as the estimated frequency offset.

5. The method of claim 1, wherein the step of processing a second synchronization channel includes the steps of:

processing the first synchronization channel to provide a coarse estimate of the frequency offset in the received wireless signal;

processing the first synchronization channel to further refine the coarse estimate of the frequency offset to provide a final estimate of frequency offset; and

adjusting a clock of the wireless receiver to compensate for the final estimate of the frequency offset.

6. A method for use in a Universal Mobile Telephone System (UMTS) based wireless receiver, comprising:

acquiring slot synchronization from a primary synchronization signal of a received wireless signal; and

after acquiring slot synchronization, using the primary synchronization signal to adjust for a frequency offset while acquiring frame synchronization from a secondary synchronization signal of the received wireless signal.

7. The method of claim 6, wherein the step of using the primary synchronization signal includes the steps of:

processing the primary synchronization signal to estimate a frequency offset in the received wireless signal; and

adjusting a clock of the wireless receiver to compensate for the estimated frequency offset.

8. The method of claim 7, wherein the step of processing the primary synchronization signal to estimate a frequency offset includes:

rotating signals associated with the primary synchronization signal through a plurality of frequency offsets;

determining a corresponding plurality of correlation peaks for each of the rotated signals at each of the plurality of frequency offsets;

selecting at least one of the plurality of correlation peaks such that a magnitude of the selected correlation peak is at least as large as magnitudes of the remaining plurality of correlation peaks; and

using at least the corresponding one of the plurality of frequency offsets associated with the selected correlation peak as the estimated frequency offset.

9. The method of claim 6, wherein the step of using the primary synchronization signal includes the steps of:

processing the primary synchronization signal to provide a coarse estimate of the frequency offset in the received wireless signal;

processing the primary synchronization signal to further refine the coarse estimate of the frequency offset to provide a final estimate of the frequency offset; and

adjusting a clock of the wireless receiver to compensate for the final estimate of the frequency offset.

10. Wireless equipment comprising:

a front end (105) for receiving a wireless signal and for providing a stream of received samples;

a primary synchronization element (205) operative on the received samples for acquiring slot synchronization to a primary synchronization signal of the received wireless signal and for further processing the primary synchronization signal subsequent to slot synchronization for estimating frequency offset;

a secondary synchronization element (210) operative on the received samples for acquiring frame synchronization to a secondary synchronization signal of the received wireless signal; and

a processor (135), responsive to the further processing of the primary synchronization signal by the primary synchronization element, to adjust for a frequency offset in the wireless equipment during operation of the secondary synchronization element.

11. The wireless equipment of claim 10, wherein, subsequent to slot synchronization, the primary synchronization element continues to process the primary synchronization signal of the received wireless signal simultaneously with processing of the received wireless signal by the secondary synchronization element.

12. The wireless equipment of claim 10, wherein the primary synchronization element determines an estimate of the frequency offset in the received wireless signal and the

processor adjusts a clock of the wireless equipment to compensate for the estimated frequency offset.

13. The wireless equipment of claim 10, further including a rotator (215) for rotating the received samples while the secondary synchronization element is acquiring frame synchronization and for applying the rotated received samples to the primary synchronization element, which processes the primary synchronization signal represented therein.

14. The wireless equipment of claim 13, wherein the processor selects a rotation value of the rotator for use as the estimated frequency offset.